

## Scientific Truth

by

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When I was a young man, I was first drawn to mathematics and then physics by its possibility for finding out and describing true things. In contrast to the confusion and complexity of my adolescent world, statements like “for a right triangle,  $c^2$  equals  $a^2$  plus  $b^2$ ” are verifiably true. In addition, one can determine whether this statement is also true for other kinds of triangles. I found this certainty attractive, and in some sense amazing.

Later on, I became even more moved by the possibilities of finding truth about the world by using physics. From Schrödinger’s equation one can say true things about the hydrogen atom. The possibility of finding something indisputably real, like an emission line from hydrogen, that is also within the possibility of accurate human prediction, attracted my imagination. I dreamed of saying things which were both true and new. In an adolescent fantasy, I would discover some hidden behavior of the world which would be my very own.

Now it is many years later, and I am not entirely an adolescent any more. I do feel that my life in science has indeed fulfilled that dream. So in many ways, I am pleased and satisfied by my professional life, both in past elements and in its continuation to this day. However, I have also acquired a broader perspective. I do realize that science’s ability to find and publish truth is obtained at the expense of a focus upon the less important things in life. We are better at finding true things than knowing the nature of love, justice, humanity or indeed Truth. So I have become more modest in my hopes for what portion of the world can be encompassed by science. But I remain steadfastly tied to my original view that the value of science is in its possibility to discover and state things which have a considerable content of verifiable correctness.

In doing that science might perhaps serve as an example to other parts of life. Our world suffers from an abundance of falsehoods, as in classifying a whole group of people as evil, or in listing a played out oil-field as productive, or in treating a parochial political view as universal, or in describing management theft as “protecting the interests of stockholders”. One major benefit that might be provided by science and scientists is to serve as an example of an area in which such falsehoods are neither prevalent nor rewarded.

Alas it not so. Our scandals are comparable to those in other walks of life. When we get wildly optimistic about cold fusion, or about hot fusion, or find a need for developing a technology for shooting down asteroids, or argue for practical benefits from huge investments in impractical parts of science, then we are behaving in the same self-serving fashion as the community around us. So long as we make extensive use of unbelievable statements to raise money for science, we cannot justly complain that the United States government is misusing scientific facts to support its own interests. So long as we minimize the management failures which put the names of Batlogg, Bell Laboratories, and Lucent on the fraudulent work of Schon, we cannot claim that our world is managed better than, say, the world of corporate accounting. And if we scientists don’t represent the truth, who will?